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ABSTRACT

The paper describes the efforts made in a Portland, Oregon suburban school district to develop effective supplementary career awareness instruction for fifth grade students. Evaluation of a three-year exemplary integrated K-14 vocational education project (VIGOR) had revealed no significant differences in career awareness competencies between primary and intermediate level students in the program and students from a demographically similar control group whose school had no career education program. Significant differences were found, however, between students at the upper grade, occupational cluster level. A study made to determine the reason for this finding uncovered references in the literature to the "fantasy period" from age 4 to 11. It was hypothesized that, in order to develop "reality awareness," young students need supplementary instruction in the areas of detail underlying the duties of any particular job. These areas were: tools, skills, schedule, management, safety, and preparation. Instructional methodology, the development and field-testing of a measurement instrument, and the experimental design are recounted. In two of the six areas of job detail (tools and safety), students who had received the supplementary "reality training" discussed jobs more realistically than control group students; in the other four areas, there was no significant difference. (AJ)

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A STUDY OF THE CONCEPT OF FANTASY/REALITY IN CAREER AWARENESS INSTRUCTION*

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Background

In May, 1973 the David Douglas Public Schools, a suburban district, completed a three-year exemplary project in vocational education entitled VIGOR (Horner and McCaleb). This project was designed to articulate a K-14 career education system and integrate all such programs as guidance services, vocational clusters, occupational exploration, and work experience with the district's general education program. One feature in this project's evaluation was a set of measured comparisons between students from David Douglas and from a demographically similar control district which had not instituted a formalized career education program.

While statistically significant differences between David Douglas and control students had been found in terms of the institution of upper grade cluster programs, primary and intermediate grade students showed no significant differences in such career awareness competencies as identifying jobs, stating the difference between two jobs, or correctly stating the service performed in a given job.

These findings were puzzling, in that the defined district objective for career awareness closely followed a basic goal established by the

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Oregon State Department of Education (Pannell):

> To shift instructional focus from the products of business and industry to the services people perform in producing and processing the products.

A key state guideline was that the latter part of career awareness should focus on the *tasks* performed by people in the careers they espouse. That was precisely what Project VIGOR personnel felt they had done.

In the next year, a study was made to determine the reason for this finding. A first clue appeared during an investigation into writings on vocational choice (Ginzburg; Super). There were several references to a time (from age 4 to 10/11) named the *fantasy* period, wherein the student is unaware of the barriers standing in the way of his or her choices. Paraphrasing a definition of fantasy by Eric Klinger, the following was postulated:

> Fantasy awareness is the report of the student's mental synthesis of a particular job, when the report omits actual details underlying the duties of that job. Reality awareness is the report when it includes such details.

Prior career *awareness* instruction had focused on the duties of a particular job. Concurrently, career *exploration* instruction had focused on specific details underlying the duties of jobs in terms of what the student individually liked and wanted. Suppose the career exploration teacher assumed that the student was familiar with categories of detail when in fact the student wasn't. It was therefore proposed that career awareness instruction would be strengthened if it not only dealt with duties, but also areas of detail, such as the use of tools or how skills were applied. If this instruction were provided without narrowing the students' horizons, but simply through orienting them to important job details, students would indeed possess that assumed realistic awareness of the composition of careers.

Author Engebretsen, as Principal of the Mill Park School, decided to develop instructional methodology along these reality lines. Using care not to destroy the child's desire to fantasize, but to present the child with realistic details, he and his staff decided to use the career awareness field trip as the point of instructional change. A list of generalizable areas of job detail was formulated with the teaching staff. These included:

> tools, skills, schedule, management, safety, and preparation

Previously when students went on a field trip, it had been the practice to take slides of persons performing their job duties. This photography continued, but slides now centered on the areas as they applied to duties. After the field trip, as before, the slides became an integral part of classroom career awareness activities. Now, however, discussion of duties centered around the areas.

Development of the Instrument

It then became imperative to develop a device to measure whether or not such instruction would enable children realistically to discuss these areas. A team of 6 persons -- specializing in career education, measurement, and instruction -- participated in development of the instrument.

It was decided that the instrument should be of the performance type. Further, the stimulus presented to the student had to be constructed so that the elicited responses could be inspected for congruence with reality and so that the possibility was minimized that the stimulus *per se* was the reality instructional device for the student.

It was decided to ask the student to write a free-form essay in which he or she stated everything known about a job. A set of 10 essays were written by 4th, 5th, and 6th grade students residing outside the district and submitted to the team members for scoring.

A Kendall coefficient of concordance (W) was calculated twice (Siegel). One was a measure of rater concordance between the students; the other was a measure of rater concordance between the areas. It was decided that the scoring criteria would be acceptable only when both W's were (through χ^2) significant at the .01 level.

It became apparent after this round of essay writing that one of the problems inherent in this method of eliciting student response was that the student might simply not choose to address one or more areas. And so it was decided to abandon the free-form essay in favor of a set of questions based specifically on the scoring criteria for a reality response. For example, if the scoring criterion for reality in the area of tools was that the student would name a tool appropriate to the given job AND state a specific application to the job, the question thus became, "Name a tool appropriate to this job and tell how the worker specifically applies it to the job."

It took three rounds of field testing (8-10 students in each round) and scoring before the W's were sufficiently high [The final χ^2 between areas was 22.44 (df=5); χ^2 between students was 20.12 (df=7)]. The final areas and their scoring criteria for reality were:

1. *Tools* (*Any* means the worker uses to provide the product or service, except whole people.) The student names a tool appropriate to the job AND states a specific application to the job.

2. *Discrete Skill* (A skill is a *specific* action the worker does which is related to the job and which is acquired through practice.) The student names or describes a skill possessed by the worker AND states why he or she needs it on the job.

3. *Schedule* The student lists at least two events that occur to provide service or produce the product, *in the correct sequence* tied together by an adverb or adverbial clause indicating time sequence.

4. *Management* The student states that a choice, a decision, or selection is, or has been made by the worker, one of his colleagues, or his supervisor. A choice by the customer is not reality. If the verbs "choose," "decide," or "select" are used, the student must write at least two options from which to choose, decide or select OR write an adverb or adverbial clause that shows options.

5. *Safety* The student names a safety device logically used by the worker OR describes a safety practice the worker follows that is related to the job AND states specifically how the device is used or practice is followed to prevent harm.

6. *Preparation* The student names a school subject or describes at least one specific event which prepares the worker for how to provide the service or product.

The team was satisfied that the instrument was ready for field testing. There was concern, however, about the stimulus question for the area of management. The question used was "How does the worker know what to do on the job?" There was some discussion about changing the question to "How does the worker know when to do what on the job?", but it was felt that this question would overlap with the area of schedule. A question such as "Who tells the worker what to do on the job?", it was felt, would lead the student into reality. Since concordance on criteria had been reached, it was decided to proceed with the original management area stimulus question.

Another concern of the group was that, through practice, it might have developed a set of scoring criteria which could not be scored with high reliability by persons doing it for the first time. It was thus decided that the first part of the experiment would be a determination of whether or not other scorers could judge responses reliably after simple introduction to the scoring criteria.

Experimental Design

It was decided to administer the instrument to all 5th grade students at Mill Park School in late May, 1975. A control school was chosen on two bases: (1) geographical proximity to Mill Park and (2) absence of reality training of the type done at Mill Park. The instrument was administered to all 5th grade students at the control school on the same morning as at Mill Park. In order to minimize administration effects, all testing was done by two IED psychometric specialists, each giving the instrument to one of the two classes in both schools.

A list of 14 jobs which had been studied at Mill Park was placed on the blackboard, and all students in the experiment were allowed to choose the job they would like to write about. There were no other restrictions on their choice.

Three teachers were chosen to score all tests. The only introduction the scorers had to the administration and scoring of the test was a one-hour discussion of the instrument.

Student responses from both schools were coded with a three digit number. Three copies of each response sheet were prepared, eliminating all references to student, school, or class designations. Each set of response papers was randomly shuffled prior to being given to the scorers. To test differences between experimental and control students, it was decided to classify results for each detail area as follows:

Definite reality - scored as reality by all 3 scorers
Probable reality - scored as reality by 2 scorers
Probable fantasy - scored as reality by 1 scorer
Definite fantasy - scored as reality by no scorers

Hypotheses

The field test was designed to test the following hypotheses:

1. The scorers will score students with high reliability.

   Null hypothesis: There will be no concordance among scorers with respect to students as tested through W by χ^2, at the .01 level of significance.

2. The scorers will score detail areas with high reliability.

   Null hypothesis: There will be no concordance among scores with respect to detail areas as tested by s at the .01 level of significance.

3-8. For each of the six detail areas, more students at Mill Park will be scored in definite and probable reality than students at a control school.

   Null hypothesis: There is no difference between the number of Mill Park and control school students scored definite and probable reality, as tested by χ^2, at the 5% level of significance.

Results

86 students responded to the instrument. 46 students were from Mill Park; 40 students were from the control school.

To test hypothesis 1, a coefficient of scorer concordance with respect to students was computed. W was .768 with a corresponding χ^2 of 195.84 (df=85), which is significant at the 1% level. The null hypothesis, therefore, is rejected and hypothesis 1 is accepted.

To test hypothesis 2, a coefficient of scorer concordance with respect to areas was computed. W was .917, based on an s-factor of 143 which is significant at the 1% level (122.8 is needed for k=3, N=6; Siegel). Therefore, the null hypothesis is rejected and hypothesis 2 is accepted.

The results for hypothesis 3 through 8 are summarized in the following table:

	% of students in definite and probable reality					
	Area 1 Tools	Area 2 Skills	Area 3 Sched.	Area 4 Mgmnt.	Area 5 Safety	Area 6 Prep.
Mill Park	78.2%	36.9%	13.0%	2.2%	47.8%	21.7%
Control School	50.0%	22.5%	5.0%	2.5%	5.0%	25.0%
χ^2 (df=1)	6.33*	1.49	0.83	0.38	7.34**	0.01

* $\chi^2_{.95}(1) = 3.84$ ** $\chi^2_{.99}(1) = 6.64$

For areas 1 and 5 (tools and safety), the null hypothesis is rejected, and the hypothesis that more Mill Park students will be scored in definite and probable reality than control students is accepted. For areas 2, 3, 4, and 6, the null hypothesis is accepted, and the hypothesis that more Mill Park students will be scored in definite and probable reality is rejected.

Summary and Conclusions

In terms of scoring, it was found that three randomly selected teachers could apply the scoring criteria with a high degree of reliability with respect to the areas and to the students. Since such inter-rater reliability is a necessary part of the performance instrument, these results indicate that the instrument can be used by persons other than the members of the development group.

In terms of student results, Mill Park students demonstrated significantly higher reality awareness in the detail areas of tools and safety. In the areas of skills, schedule management, and preparation there was no significant difference between the two groups, i.e. the differences found could be attributable to chance.

The question of the degree to which instruction affected Mill Park students hasn't been fully answered. The development group felt that the area of tools is probably the first where students, in their natural development, become aware of reality. A clue that instruction was a factor in helping Mill Park students towards reality awareness is found in the area of safety. There was definite instruction in this area at Mill Park, and the results showed nearly 50% of the of the Mill Park students being scored "in reality" for this area; the same result was 5% for the control group.

Finally, the results for the area of management are so low for both groups that previous concerns about the stimulus question may be well-founded. Only 2-1/2% of both classes were scored as giving reality responses to this area.

In summary, the results of this experiment suggest that the concept of reality awareness is worthwhile to pursue. Further research needs to be done on the stimulus question for the area of management. This could be done by administering several possible questions to students who have and have not been instructed about management to see if one of the questions produces significantly higher reality than others. Still further research is needed concerning the effect of natural development on the student's movement into reality.

If such effects can be pin-pointed, career awareness instruction might be made more compatible with the student's developmental stages and needs. Career awareness instruction on job duties, supplemented by reality awareness instruction, may produce students better able to realistically proceed into career exploration and vocational choice.

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